
A New Species of *Matelea* (Apocynaceae, Asclepiadoideae) from Trans-Pecos, Texas, U.S.A.

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ABSTRACT. *Matelea atrostellata* Rintz (Apocynaceae, Asclepiadoideae), a new species from Trans-Pecos, Texas, U.S.A., is described and illustrated. This species is very similar vegetatively to *M. producta* (Torrey) Woodson and *M. texensis* Correll, but is readily distinguished floristically by its rotate corolla and its nearly black corona. Both *M. producta* and *M. texensis* have campanulate corollas and very pale green or white coronas. This is the fifth species of *Matelea* Aublet to be recorded from Brewster County, Texas.

Key words: Apocynaceae, Asclepiadoideae, IUCN Red List, *Matelea*, Trans-Pecos, Texas.

The genus *Matelea* (Apocynaceae, Asclepiadoideae) was originally established by Aublet in 1775 to accommodate two species of plants that he found in French Guiana, *M. palustris* Aublet and *M. latifolia* Aublet. It currently comprises ca. 100 species occurring mainly in Central America, but about 20 species also occur in the southern regions of the United States as far north as central Tennessee, Missouri, Oklahoma, New Mexico, and Arizona. At least eight of these species are endemic to the United States (Drapalik, 1969; Turner, 2003). The plants are either vines or form decumbent rosettes of short stems from a central rootstock. All the U.S. species have leaves with cordate bases, and on most of them the indumentum is comprised of a mixture of long, stiff trichomes and short, glandular ones (Stevens, 1976). The climbing species generally have smooth fruits, sometimes with rounded projections, pale in color with dark lines, while the decumbent species have rough, spiny fruits of a uniform color. *Matelea atrostellata* Rintz is the fifth climbing species recorded from Brewster County, Texas, the others being *M. reticulata* (Engelmann ex A. Gray) Woodson, *M. parvifolia* (Torrey) Woodson, *M. producta* (Torrey) Woodson, and *M. texensis* Correll.

Matelea atrostellata Rintz, sp. nov. TYPE: U.S.A. Texas: Brewster Co., Big Bend Natl. Park, Chisos Mtns., Oak Canyon, twining in shrubs along the middle of Window Trail, ca. 1540 m, 15 Aug. 2005, R. E. Rintz 2005-1 (holotype & color

photo, SRSC; isotype & color photo, MO). Figure 1.

Planta scandens 1–2 m longa; caulis gracilis ca. 1 mm diam., puberulus. Folia petiolis puberulis ca. 1 cm longis, laminis membranaceis, basibus cordatis, lobis magnis, apicibus attenuatibus, in superficiebus folii ambabus puberulis, 3–6 × 1.5–3 cm. Inflorescentiae pedunculis ca. 1 cm longis, simul 1 vel 2 floribus, pedicellis ca. 1 cm longis, puberulis. Corolla rotata, ca. 13–15 mm diam., colore pallide aurantiaco vel atropurpureo; corona saturatissime atropurpurea, elatior quam stigmata, ca. 1 mm alta; corona exterior brevi-cylindrata, quinque-lobata; corona interior calcaribus 5 antheris oppositis. Folliculi glabri, 8–10 × 1.5–2 cm, pallide virides, lineis atroviridibus ornati.

A twining vine producing stems annually from a perennial rootstock of undetermined form; stems ca. 1 mm diam., from 1–2 m, glandular-pubescent. Leaves with glandular-pubescent petioles ca. 1 cm; laminae membranous, bases cordate with large lobes, tips attenuate, both sides pubescent, 3–6 × 1.5–3 cm. Inflorescences from extra-axillary peduncles ca. 1 cm, bearing 1 or 2 flowers at a time on glandular-pubescent pedicels ca. 1 cm. Calyx lobes lanceolate, ca. 3 × 1.5 mm, glandular-pubescent outside, glabrous inside; corolla rotate, ca. 13–15 mm diam., color varying from pale orange to very dark red or dark green, sometimes appearing nearly black, lobes ca. 5–6 mm, glabrous above on some, on others with numerous large, incurved trichomes extending from the base to 2/3 or 3/4 length of lobes, pilose below without glandular hairs; outer corona a short, 5-lobed cylinder rising ca. 1 mm above corolla with an inner corona of 5 spurs opposite and closely appressed to anthers and partly overarching them; the rim of corona cylinder and inner corona spurs with numerous papillae possibly functioning as osmophores; the corona slightly taller than the short gynostegium, very dark red to black, usually darker than corolla, the apex of stigma appearing as a white dot in a dark ring; stigma flat with a central depression; anther appendages short, leaving stigmatic center uncovered; corpusculum spatulate, ca. 0.25 mm, dark brown; translators short, twisted, attached perpendicular to corpusculum; pollinia round-ovate, ca. 0.5–0.6 mm diam. with a short wing at the bottom. Follicles pendant, smooth, 8–10 × 1.5–2 cm, pale green or

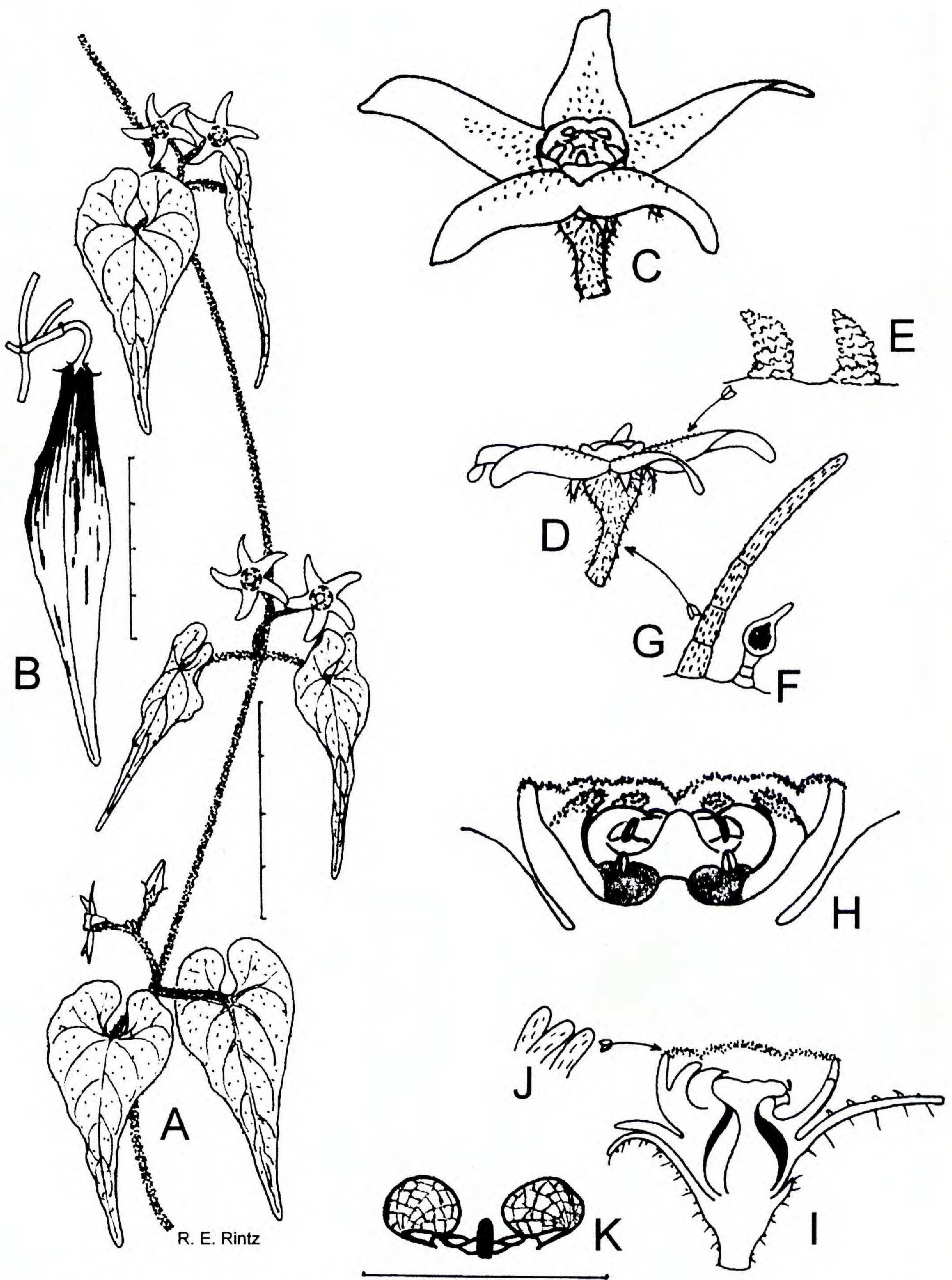


Figure 1. *Matelea atrostellata* Rintz. —A. Habit (scale = 4 cm). —B. Fruit (scale = 4 cm). —C, D. Flower in oblique and side views. —E. Corolla trichomes. —F. Glandular trichome from sepals and pedicel. —G. Long, stiff trichome from sepals and pedicel. —H. Gynostegium with front portion of corona cut away. —I. Radial section of flower. —J. Papillae from rim of corona. —K. Pollinarium (scale = 1 mm). A from R. E. Rintz 2005-1 (SRSC); B from photo (SRSC); all others from flowers in liquid (SRSC).

gray with dark green lines; seeds oval, entire with a coma.

Note: The author was in the company of A. M. Powell, and the type collection was made on his park permit BIBE-2001-SCI-0029.

Relationships. *Matelea atrostellata* is one member of a trio of species that also includes *M. producta* and *M. texensis*. Currently, *M. atrostellata* and *M. texensis* are known only from Brewster County, while *M. producta* is also known from there, but extends northward at least as far as central New Mexico. These three species are remarkably similar in their habits. All are small vines twining into shrubs, have cordate-attenuate leaves, are glandular-pubescent, and have virtually identical fruits. They also share a cylindrical five-lobed outer corona that has an inner corona of five spurs behind or overarching the anthers. The upper margin of the outer corona lobes is papillose as is the spur of the inner corona. In *M. producta* the outer corona is shorter than the gynostegium; in *M. atrostellata* it is slightly higher, and in *M. texensis* it is twice as high with an inner corona of five well-developed papillose spurs. Both *M. producta* and *M. texensis* have grass green, campanulate corollas, but the former is glabrous within and the latter is velutinous. (In August 2006, I found several specimens of *M. producta* at the Davis Mountains Preserve of The Nature Conservancy in Jeff Davis County, which had deep red corollas with white coronas. A specimen (R. E. Rintz 2006-2) is deposited at SRSC. This suggests a further link between the two species.) In *M. atrostellata* the corolla is rotate, sometimes with short, thick trichomes on the inner surface, and is often a very dark red or dark green color.

Etymology. The specific epithet *atrostellata*, or dark-starred, refers to the usually dark green to dark red to nearly black corolla.

Ecology, conservation assessment, and IUCN Red List category. As of this writing, *Matelea atrostellata* is known only from a single population in a sky-island canyon with a well-traveled nature trail. I visited the

population in August of 2004, 2005, and 2006 and each time found plants in flower and fruit. No plants were found away from the trail. While there seemed to be fewer than 100 plants, the population appeared stable and healthy to me. No additional specimens of the new species were seen at SRSC or at MO. On this basis it might be appropriate to list the plant as Vulnerable, VU D1 and 2, according to the IUCN (2001) Red List criteria.

Additional comments. *Matelea atrostellata* is host to a rust fungus that stunts the plant, thickens and yellows its leaves, and distorts its flowers. Tiny black hemispherical spots appear on the adaxial and abaxial leaf surfaces, petioles, and stems. They contain clusters of two-celled, orange-brown teliospores. White pustules appear on the abaxial leaf surface and rupture to release large numbers of what seem to be single-celled, clear uredospores. If this interpretation is correct, there should be an alternate host nearby.

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